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Saucerization of discoid lateral menisci. How much residual width is right?

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Abstract: Objectives: Discoid lateral meniscus (DLM) is a congenital anomaly of the knee where the normally “O” shaped lateral meniscus has redundant tissue filling the “O” and covering the lateral tibial plateau. The redundant tissue can degenerate and cause mechanical symptoms and pain. Treatment of symptomatic DLM is arthroscopic saucerization to reshape the meniscus to a more normal contour. Enough tissue must be removed to eliminate mechanical symptoms but not too much as to create instability. The residual width of the meniscus is crucial at the popliteus hiatus because here the peripheral rim is unattached to the capsule. The literature recommends a residual width of 6-8 mm. The primary purpose of this research was to determine the width of the meniscus at the popliteal hiatus in normal specimens. Our null hypothesis was that a residual width of 6-8 millimeters will be sufficient for saucerization of DLM. Methods: We made direct measurements of lateral meniscus radial width from the outer rim at the popliteus hiatus to the inner edge (Figure 1) in 19 specimens (ages 2 months to 11 years.) We measured one four-year-old specimen with bilateral complete DLM (Figure 2.) We also measured 39 digital images of specimens (ages 1-month to 12-years) using ImageJ. Finally, we made direct measurements of 8 skeletally mature specimens. Results: Figure 3 shows the relationship of meniscus width as a function age. The average width of specimens <3-years-old was 5.5mm. The average width of the ten-year-old specimens was 12mm. The average width of the skeletally mature specimens was 16mm. The four-year-old DLM specimen measured 19 mm. Conclusions: We rejected our null hypothesis. Direct measurements suggest that a residual width of 6-8mm is insufficient for children 8-years and older. A width of at least a full centimeter more closely approximates our findings, and for adolescents consider a residual rim of 15 mm. For children less than six-years-old a residual width of 6-8mm is sufficient.

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SAUCERIZATION OF DISCOID LATERAL MENISCI. HOW MUCH RESIDUAL WIDTH IS RIGHT?

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Objectives: Discoid lateral meniscus (DLM) is a congenital anomaly of the knee where the normally “O” shaped lateral meniscus has redundant tissue filling the “O” and covering the lateral tibial plateau. The redundant tissue can degenerate and cause mechanical symptoms and pain. Treatment of symptomatic DLM is arthroscopic saucerization to reshape the meniscus to a more normal contour. Enough tissue must be removed to eliminate mechanical symptoms but not too much as to create instability. The residual width of the meniscus is crucial at the popliteus hiatus because here the peripheral rim is unattached to the capsule. The literature recommends a residual width of 6-8 mm. The primary purpose of this research was to determine the width of the meniscus at the popliteal hiatus in normal specimens. Our null hypothesis was that a residual width of 6-8 millimeters will be sufficient for saucerization of DLM.

Methods: We made direct measurements of lateral meniscus radial width from the outer rim at the popliteus hiatus to the inner edge (Figure 1) in 19 specimens (ages 2 months to 11 years.) We measured one four-year-old specimen with bilateral complete DLM (Figure 2.) We also measured 39 digital images of specimens (ages 1-month to 12-years) using ImageJ. Finally, we made direct measurements of 8 skeletally mature specimens.

Results: Figure 3 shows the relationship of meniscus width as a function age. The average width of specimens <3-years-old was 5.5mm. The average width of the ten-year-old specimens was 12mm. The average width of the skeletally mature specimens was 16mm. The four-year-old DLM specimen measured 19 mm.

Conclusions:

We rejected our null hypothesis. Direct measurements suggest that a residual width of 6-8mm is insufficient for children 8-years and older. A width of at least a full centimeter more closely approximates our findings, and for adolescents consider a residual rim of 15 mm. For children less than six-years-old a residual width of 6-8mm is sufficient.



